



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/771,186	01/29/2001	Lawrence Bernard Kool	RD-28,011	7166
7590	10/07/2003			EXAMINER CARRILLO, BIBI SHARIDAN
Tracey R. Loughlin DOUGHERTY, CLEMENTS & HOFER 1901 ROXBOROUGH ROAD SUITE 300 CHARLOTTE, NC 28211			ART UNIT 1746	PAPER NUMBER 17
DATE MAILED: 10/07/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/771,186	KOOL ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Sharidan Carrillo	1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 14 July 2003.
- 2a) This action is FINAL.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 27-33 is/are allowed.
- 6) Claim(s) 1-26 and 34 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |                                                                                                               |                                                                              |
|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                          | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>16</u> . | 6) <input type="checkbox"/> Other: _____ .                                   |

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 23-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 23 is further indefinite because it is unclear what one of ordinary skill in the art would consider as "reactive conditions" or "predetermined conditions". Specifically, what are the conditions necessary to remove the oxidized product. Claim 24 is indefinite because it fails to recite a positive step of removing the oxide material. Claims 25-26 are indefinite because of its dependency.

Claim 29 is indefinite because it is unclear how the oxide material directly contacts the substrate since the oxide material is present on the coating. Claim 29 is indefinite because it is dependent on claim 27 which specifically recites the oxide material present on the protective coating and not on the substrate.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 5-7, 9-11, 13, 15-18, 20-21, 23 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Kanai et al. (56-166386).

In reference to claims 1 and 23, Kanai et al. teach a method of removing lead oxide from a substrate comprising contacting the substrate with hydrosilicofluoric acid (H<sub>2</sub>SiF<sub>6</sub>), followed by coating the substrate with a new oxide layer.

In reference to claims 2 and 6, Kanai et al. teach H<sub>2</sub>SiF<sub>6</sub>. In reference to claims 3 and 5, refer to the abstract. In reference to claim 7, Kanai et al. teach an acid/salt. In reference to claims 9 and 13, Kanai et al. teach acetic acid. In reference to claims 10 and 11, the limitations of pH are met since Kanai et al. teach the same acid as that of the instant invention. In reference to claims 15-18, 20-21, and 34 refer to the abstract.

5. Claims 1-4, 6-8, 17-19, 22-23 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by O'Brien (5817182).

O'Brien teaches removal of oxide from a semiconductor wafer using HF. In col. 2, lines 46-59, O'Brien teaches SiO<sub>2</sub> reacts with HF to form aqueous H<sub>2</sub>SiF<sub>6</sub> solution which further etches the silicon dioxide. In reference to claims 1, 2, 6-8, and 23, refer to col. 2, lines 50-53. In reference to claims 3-4, refer to col. 2, lines 25-27. In reference to claim 17, refer to col. 4, lines 48-50. In reference to claim 18, refer to col. 2, lines 30-31. In reference to claim 19, refer to col. 4, lines 40-41. In reference to claim 22, O'Brien teaches the addition of NH<sub>4</sub>F (col. 2, lines 27-29). In reference to claim 34, refer to the abstract.

6. Claims 1-2, 6, 9, 12-14, 17, 23, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Carlson et al. (5227016).

In reference to claims 1-2, 6, 9, 12-14, 23 and 34, Carlson et al. teach a method

of removing oxide from an aluminum surface using a composition comprising phosphoric acid and H<sub>2</sub>SiF<sub>6</sub> (col. 1, lines 60-65, col. 2, lines 15-20, lines 1-5). In reference to claim 17, refer to col. 5, lines 45-50.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-7, 9-13, 15-23, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harrison (3062748).

In reference to claim 1, Harrison teaches a composition for use in metal cleaning such as descaling of ferrous lines, the composition comprising fluoride compounds H<sub>2</sub>SiF<sub>6</sub>, and H<sub>2</sub>TiF<sub>6</sub>. In reference to claims 1 and 23, Harrison teaches the removal of scale (i.e. scale is made of oxide) from the ferrous line (col. 2, lines 35-37, col. 6, lines 34-35, 53-55). In reference to claim 2, refer to col. 2, lines 35-37. In reference to claims 3, 4, and 6, refer to col. 2, lines 43-45. In reference to claims 5 and 7, refer to col. 3, Table 1 which teaches ammonium hexafluorotitanate. Also refer to Table II. In reference to claims 9-13, Harrison teaches HCl. The limitations of pH are met since Harrison teaches the same acid as that of the instant invention. In reference to claim 15, refer to col. 3, lines 30-31. In reference to claim 16, 15% HCl reads on the limitation of about 20%. In reference to claim 17, Harrison teaches treating the metal coupons in HCl/fluoride containing solutions. In reference to claims 18-21, refer to col. 4, lines 70-71. In reference to claim 22, refer to col. 2, lines 55-57. In reference to claim 34, refer to col. 6, lines 50-55.

#### **Allowable Subject Matter**

10. Claims 24-26 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

11. Claims 27-33 are allowed.

***Response to Arguments***

12. Applicant argues that Kanai teaches removing residual lead dioxide from a metal using H<sub>2</sub>SiF<sub>6</sub>. Applicant argues that Kanai, O'Brien, or Harrison fails to teach removing an oxidized product. Applicant's arguments are unpersuasive since the teachings of Kanai or O'Brien, or Harrison teaches the removal of an "oxidized product" (i.e. Lead dioxide, silicon oxide, ferrous oxide) disposed on a substrate. Page 5, liens 14-22 of the instant specification teaches an oxide material which includes oxidized products such as aluminum or nickel oxide. Therefore, the removal of any metal oxide from the substrate using the claimed composition reads on applicant's claimed invention.

13. The rejection of the claims under 112, second paragraph is maintained for the reasons recited above.

14. Applicant argues that Kanai teaches a 3 ingredient composition in comparison to a single ingredient. Applicant's arguments are unpersuasive since the term "comprising" is "open-ended" to include the addition of other ingredients.

15. Applicant further argues that O'Brien fails to teach dissolving oxides using H<sub>2</sub>SiF<sub>6</sub>. Applicant's arguments are unpersuasive. Applicant is directed to col. 2, lines 58-60.

16. The rejection of the claims as being anticipated by LaGraff is withdrawn in view of the 1.132 Declaration submitted by applicant.

17. The obviousness type double patenting rejection is withdrawn in view of the amendments to the claims.

18. Applicant argues that Harrison's composition includes other components not required by the instant invention. Applicant's arguments are unpersuasive since the term "comprising", as recited in the claim language is "open-ended" to include other ingredients.

19. Applicant argues that the fluorine compound of Harrison is used for a different purpose, as an inhibitor, instead of an etchant. Applicant's arguments are unpersuasive since the only requirement of the claim requires contacting the substrate with an aqueous solution comprising an acid having the formula HxAF<sub>6</sub>.

20. Applicant's arguments directed to the corrosion rate of Harrison's composition are unpersuasive since they are not commensurate in scope with the instantly claimed invention.

21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharidan Carrillo whose telephone number is 703-308-1876. The examiner can normally be reached on Monday-Friday, 6:00a.m-2:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on 703-308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7719 for regular communications and 703-305-7719 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Sharidan Carrillo  
Primary Examiner  
Art Unit 1746

bsc  
September 26, 2003



SHARIDAN CARRILLO  
PRIMARY EXAMINER